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13. ABSTRACT (Maximum 200 Words)

The goal of the University of Alabama at Birmingham Interdisciplinary Breast Cancer Training Program (IBCTP) is to educate and train predoctoral students in a multidisciplinary environment with a focus on breast cancer research. The aims are to 1) recruit predoctoral trainees to the Interdisciplinary Breast Cancer Training program; 2) assure that predoctoral trainees obtain a broad-based breast cancer education and carry out interdisciplinary breast cancer research; 3) administer this program with sufficient oversight to ensure high-quality education and training, efficient completion of degree requirements, and productive research careers. For academic year 2004-2005, we recruited 2 new students, had one previous student transfer to another program, resulting in a total of 10 students in the IBCTP (six more than initially recommended by the study section). Two students have been accepted for Ph.D. candidacy. The IBCTP hosted 12 scientists to present seminars on cancer related research and to talk to the predoctoral trainees. The Breast Cancer Causation and Regulation course and Breast Cancer Journal Club received "very good" evaluations. Seven abstracts/presentations were made by 4 students at scientific meetings. One Susan Komen predoctoral grant was renewed and two new research grants were awarded to faculty, in part, because of student data used in the preparation of the grant applications.

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INTRODUCTION

The goal of the University of Alabama at Birmingham Interdisciplinary Breast Cancer Training Program (IBCTP) is to educate and train predoctoral students in a multidisciplinary environment with a focus on breast cancer research. The aims are to 1) recruit predoctoral trainees to the IBCTP; 2) assure that predoctoral trainees obtain a broad-based breast cancer education and carry out interdisciplinary breast cancer research; 3) administer this program with sufficient oversight to ensure high-quality education and training, efficient completion of degree requirements, and productive research careers. Our training program is designed to prepare and motivate trainees to pursue careers in the fields of breast cancer causation, prevention, diagnosis, therapy and education.

BODY

The executive committee is the same as last year: Dr. Danny Welch (Mechanisms of Growth Control), Dr. Therese Strong (Gene Therapy), Robert B. Diasio (Cancer Pharmacology), Clinton Grubbs (Chemoprevention), Charles N. Falany (Cancer Causation), and Dr. Coral A. Lamartiniere (Program Director), plus one new elected student/trainee, Tim Whitsett. The executive committee is responsible for interviewing and selecting prospective IBCTP students, developing and implementing the academic and research program, review of individual student progress, the budget, and participating in Quarterly and Annual Program reviews.

TASKS FOR YEAR FOUR (9/03 - 8/04)

1) Schedule IBCTP seminar speakers (Aim 2).
The APPENDIX contains the list of breast cancer seminar speakers (pages 10 and 11).

2) Hold quarterly program reviews (Aim 3).
Quarterly program reviews were held by the executive committee to discuss recruitment, the progress of the trainees, the curriculum and the evaluation of courses. Two new students were recruited: Sarah Jenkens and Heath McCorkle.

3) Monitor progress of trainees (Aim 3).
At the quarterly meetings, progress of individual students was discussed. At the end of the summer meeting, laboratory evaluations turned in by the mentors were taken into consideration. All 2003 students made satisfactory progress academically (A & B grades) and have selected research mentors: James Cody with Dr. Joanne Douglas (gene therapy), April Adams with Dr. Kurt Zinn (imaging); Kevin Roarty with Dr. Rosa Serra (TGF-beta in mammary). A list of students, research topic and mentors is provided in the APPENDIX (page 9).

4) Attend AACR meeting.
Craig Rowell and Tim Whitsett attended and made poster presentations at the AACR meeting in Orlando. The PI was not able to attend because of previous commitments, but was coauthor on 2 abstracts to the AACR meeting. Also, Damon Bowe attended and presented at the Mammary Gland Biology, Gordon Research Conference, Bristol, RI, and Craig Rowell attended and presented at the Susan Komen Breast Cancer Meeting in New York. The PI has attended 3 Breast Cancer and the Environment meetings in Philadelphia, Research Triangle Park NC, and

Washington. A list of all abstracts/presentations is contained in Reportable Outcomes .

5) Hold annual program review (Aim 3).
At the end of the summer executive committee meeting, the following recommendations were made. The Breast Cancer Causation and Regulation course and new format Breast Cancer Seminar Series received very good evaluations and it was recommended that the contents be kept the same. A copy of the Breast Cancer Causation and Regulation course content is enclosed in the APPENDIX (page 12).

6) Prepare and submit annual report to DOD. Submitted.

KEY ACCOMPLISHMENTS

- The program now has 10 predoctoral Breast Cancer students in good academic standing and/or making good progress in breast cancer research. One (Chantelle Bennetto) has decided to switch field (to pharmacy). The second year students, (James Cody, April Adams and Kevin Roarty) have selected their mentors (Drs. Joanne Douglas, Kurt Zinn and Rosa Serra, respectively, all breast cancer research).

- Two students Craig Rowell and Damon Bowe have been admitted into candidacy for the Ph.D.

- For academic year 2004-2005, 6 applicants (from 30 completed applications) were interviewed and fellowships were offered to and accepted by 2 students (Sarah Jenkins and Heath McCorkle). Their credentials are provided in the APPENDIX (page 8).

- The appendix contains the lectures for the Breast Cancer Causation and Regulation course (page 12). The 2003-2004 course received a "very good" evaluation.

- Renewed Susan Komen Breast Cancer Predoctoral Award for one student and received 2 new breast cancer research grants based in part on preliminary data from 2 trainees (listed in Reportable Outcome).

REPORTABLE OUTCOMES

1) Presently, we have 10 students enrolled *via* the IBCTP.

2) Published Abstracts
Bowe, D.B., Jones, M., Sadlonova, A., Page, G.P., Allison, D.B., and Frost, A.R.: "Age-related gene expression profiles for invasive breast carcinomas in pre- and post-menopausal women." Mammary Gland Biology, Gordon Research Conference, Bristol, RI, June 1-6, 2003.

Whisenhunt, T.W., Yang, X., **Bowe, D.B.**, Toleman, C.A., Paterson, A.J., Kudlow, J.E. "Escaping Repression at Estrogen Promoters: Regulated Coactivators in Repression Complexes." Cambridge, U.K., March 18-21, 2004.

Cody, J., Lyons, G., and Douglas, J. A Dual-Action Armed Replicating Adenovirus for the Treatment of Bone Metastases of Breast Cancer. *Mol. Ther.* 9, S370, 2004.

Carpenter, M., **Rowell, C**, Lamartiniere, C. and McCorkle, H., "2D-gel Proteomics in biomarker discovery." In Proceedings of Pharmaceutical Industry SAS Users Group 2004, San Diego, California.

C. Rowell, C. Lamartiniere, "Discovery of a Novel Pathway of Chemoprevention by Genistein using Proteomics" Susan G. Komen Mission Conference, New York, NY, 2004.

C. Rowell, G. Puckett, K. Roarty, M. Kirk, L. Wilson, M. Carpenter and C. A. Lamartiniere, "Serum profiling and biomarker discover of rat mammary tumors using mass-coded abundance tags (MCAT)" 95th Annual meeting of the American Association for Cancer Research, Orlando, FL, 2004.

Whitsett T, Wang J, and Lamartiniere CA. Steroid coactivator GRIP-1 regulation with genistein in the rat mammary gland. 95th Annual meeting of the American Association for Cancer Research, Orlando, FL, Proceedings, Volume 45:661. 2004.

3) Renewal of Predoctoral Award
Susan Komen Breast Cancer Predoctoral Award (DISS0201242)
P.I.: Dr. C.A. Lamartiniere; Predoctoral Student: Craig Rowell
First year: $30,000; Total: $60,000; 5/1/03 – 4/30/05
Grant Title: Effects of Genistein and TCDD on the Maturation of the Rat Mammary Gland: Alterations in Protein Tyrosine Kinase Activity and Signaling.

4) Research grants received in part because of preliminary data produced by Breast Cancer predoctoral students, Craig Rowell and Tim Whitsett.

Center for Nutrient-Gene Interaction in Cancer Prevention. NIH NCI P20 CA93753-02, S. Barnes, Center Director. Project 1. Polyphenols: Mammary and Prostate Cancer Chemoprevention. (C.A. Lamartiniere, C.A., P.I.). $833,638. 6/1/03-9/30/08.

Center for the Study of Environment and Mammary Gland Development. NIH/NIEHS. 1U01 ES012771-01. J. Russo, Fox Chase Cancer Center, Director; Lamartiniere, Co-PI. 9/29/03 – 7-31-/10. UAB PI share: $1,540,000.

APPENDIX

Student Credentials

Student Research and Mentors

IBCTP Seminar Speakers

2003-2004 Breast Cancer Causation and Regulation Lectures

Students Presently Enrolled in the University of Alabama at Birmingham Interdisciplinary Breast Cancer Training Program

Student	Previous Degree Institution	Date of Entry	GPA	GRE Verbal	GRE Quantitative	GRE Analytical
Craig Rowell	BS (95) Lake Forest IL MS (00) UAB	2000	3.8	580	610	680
Mubina Nasrin	MD (94) M.R. Medical College, India	2001	no GPA	690	650	670
Damon Bowe	BS (99) Bates College Maine	2001	3.5	590	580	710
Hope Amm	BS (02) Saint Mary's College	2002	3.38	550	640	490
Timothy Whitsett	BS (02) Yale University	2002	3.59	530	700	750
James Cody	BS (01) UAB	2003	3.37	590	670	640
April Adams	BS (01) U. Chicago	2003	3.38	660	710	-
Kevin Roarty	BS (95) Virg. Tech. M.S. (02) UAB	2003	3.74	520	680	480
Sarah Jenkins	BS (04) St College of West Georgia	2004	3.5	550	690	-
Heath McCorkle	BS (01) Emory Univ	2004	3.1	570	740	-

Students, Breast Cancer Research, and Mentors

Student	Reseach Descrption	Mentor (Department)
Craig Rowell	Proteomic Discovery of Genistein Action in the Rat Mammary Gland	Coral Lamartiniere (Pharmacology and Toxicology)
Mubina Nasrin	Therapeutic Potential of UAB 30 (a retinoic acid derivative) against Breast Cancer	Coral Lamartiniere (Pharmacology and Toxicology)
Damon Bowe	NCOAT Splice Variant Function in Mammary Gland Development	Jeffrey Kudlow (Molecular Endocrinology)
Hope Amm	Combination Immunotherapy and radiation Therapy against Breast Cancer	Donald Buchsbaum (Radiation Oncology)
Timothy Whitsett	Chemoprevention Against Breast Cancer with Genistein and Resveratrol	Coral Lamartiniere (Pharmacology and Toxicology)
James Cody	Gene Therapy for Breast Cancer	Joanne Douglas (Pathology)
April Adams	Molecular Imaging in Animal Models	Kurt Zinn (Radiation Oncology)
Kevin Roarty	Mechanisms of TGF-beta Action in Mammary Gland Development and Breast Cancer	Rosa Serra (Cell and Molecular Bioliology)
Sarah Jenkins	Breast Cancer Lab Rotations	
Heath McCorkle	Breast Cancer Lab Rotations	

2003-2004 University of Alabama at Birmingham
Interdisciplinary Breast Cancer Training Program Seminars

August 26, 2003	Satyabrata Nandi, Ph.D. Professor Dept of Molecular & Cellular Biology University of California, Berkeley "Estrogen Can Prevent Breast Cancer"
September 3, 2003	Kevin Brown, Ph.D. Assistant Professor Department of Biochemistry and Molecular Biology Louisiana State University/Health Sciences Center "ATM is a Target for Epigenetic Silencing in Breast Cancer"
October 7, 2003	Coral Lamartiniere, Ph.D. Professor, Pharmacology & Toxicology UAB "Genistein Suppresses the Development of Mammary Cancer"
October 21, 2003	Sam Lee, Ph.D. Assistant Professor, Division of Cancer Biology Harvard Medical School "Two Faces of Tumor Suppressor p53 Function: Survival and Apoptosis"
November 25, 2003	Craig Rowell Graduate Student/UAB Department of Pharmacology & Toxicology "Systems Biology: Proteomic Approaches to Biomarker Discovery in the Mammary Gland"
December 9, 2003	Charles Falany, Ph.D. Professor, Pharmacology & Toxicology UAB "Steroid Sulfation in Hormone Responsive Human Tissues"
December 16, 2003	J. Mark Cline, Ph.D. Associate Professor, Department of Pathology Wake Forest University School of Medicine "Effects of Soy Isoflavones on the Reproductive System: Independent and Interactive Effects"
February 17, 2004	Zafar Nawaz, PhD Professor

	Creighton University, Nebraska "Ubiquitin-Proteasome Pathway Enzymes as Modulators of Steroid Hormone Receptor Functions"
February 24, 2004	Leena Hilakivi-Clark, PhD Professor Georgetown University, DC "Prepubertal Diet and Breast Cancer Risk"
March 16, 2004	Pam Cowin, PhD Associate Professor, Cell Biology NYU Medical Center "Beta-Catenin and Plakoglobulin in Cell Adhesion and Breast Cancer"
April 6, 2004	Wesley Gray, PhD Professor, Chemistry & Environmental Toxicology Southern University, LA "Developing a Model System for Studying Phytoestrogen-Dependent Gene Expression"
April 13, 2004	Saraswati Sukumar Professor, Pathology Johns Hopkins University, MD "Ductal Access to Breast Cancer Prevention, Therapy and Early Diagnosis"
May 4, 2004	Richard Peterson, PhD Professor, Pharmacology & Toxicology University of Wisconsin – Madison "Impairment of Development by Dioxin"

Breast Cancer Causation and Regulation
TOX 750
Fall 2003
Mondays and Wednesdays, 3-5 pm in Volker Hall 108D

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Administrative Coordinator: Becky Warnix Volker Hall 101C; 4-4579; Becky.Warnix@ccc.uab.edu

Date	Topic	Instructor (Department)
Wed Sept 3	Overview of the Breast Cancer Problem	John Waterbor (Epi)
Mon Sept 8	Environmental Carcinogenesis	Coral Lamartiniere (Pharm/Tox)
Wed Sept 10	Steroid Hormone Action in the Breast	Barnes (Pharm/Tox)
Mon Sept 15	Oncogenes and Suppressor Genes	Mike Ruppert (Medicine)
Wed Sept 17	Signal Transduction and Breast Cancer	Jeffrey Kudlow (Endocrinology)
Mon Sept 22	Exam	
Wed Sept 24	Nuclear Receptors as Targets for Novel Small Molecule Therapeutics	Donald Muccio (Chemistry)
Mon Sept 29	Tumor-host/stroma interactions	Rossa Serra (Cell Biol)
Wed Oct 1	Primary Prevention	Mona Fouad (Preventive Medicine)
Mon Oct 6	Chemically-induced Models of Breast Cancer (Chemoprevention)	Clinton Grubbs (Chemoprevention)
Wed Oct 8	Cancer Pharmacology	Robert Diasio (Pharm/Tox)
Mon Oct 13	Exam	
Wed Oct 15	Pathology of Breast Cancer	Andra Frost (Pathology)
Mon Oct 20	Targeted Immunotherapy	Denise Shaw (Medicine)
Wed Oct 22	Breast Cancer Metastasis	Joanne Douglas (Pathology)
Mon Oct 27	Gene Therapy	Theresa Strong (Gene Therapy)
Wed Oct 29	Cancer Metastasis (Mechanisms)	Danny Welch (Pathology)
Mon Nov 3	Exam	